

Polymers Functionalized by Radiation Induced Grafting Polymerization (RIGP) as an Active and Recyclable Catalyst Support

Disclosure Number

201303051

Technology Summary

The strong metal adsorption properties of the polymer will reduce, if not eliminate, metal contamination that will ultimately reduce cost, use of resources and time for product purification. Secondly, since the metal is highly dispersed and strongly attracted to the polymer support, particle growth and agglomeration, which ultimately results in deactivation of the catalyst, are less likely to occur. The increased stability will improve the recyclability of the metal/polymer catalyst compared to more traditional heterogeneous catalysts (carbon or metal oxide supports) and will help to reduce cost. Thirdly, the grafted polymer support is versatile. It can be functionalized to be soluble in hydrophilic or hydrophobic environments and is capable in adsorbing a large variety of metals. As a result, the grafted polyethylene fiber can serve as a catalyst support for a large variety of reactions.

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